5-10-2014

Latinos in America: A Consideration of Food Accessibility Factors with Implications for the Indianapolis Community

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Thesis title: Latinos in America: A Consideration of Food Accessibility Factors with Implications for the Indianapolis Community

Intended date of commencement: May 10th, 2014

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Certified by Dr. Jason Lantzer, Director, Honors Program — Date 5-13-14 / 04/28/2014

For Honors Program use:

Level of Honors conferred: University: Magna Cum Laude

Departmental: High Honors in Anthropology

Latinos in America: A Consideration of Food Accessibility Factors with Implications for the Indianapolis Community

A Thesis

Presented to the Department of Anthropology

College of Liberal Arts and Sciences

and

The Honors Program

of

Butler University

in Partial Fulfillment

of the Requirements for Graduation Honors

Abigail C. Robison

April 28, 2014

Over the summer of 2012, I worked with *Unite Here!*, a national union that focuses on organizing hotel and restaurant employees who wish to form unions in their workplace in order to protect their rights. Many of the people with whom I worked during this time were either Hispanic or Black. Their experiences at work proved to be harsh (physically and/or emotionally) and the positions did not pay enough to sustain a family, or even just to self-sustain in some cases. I held close contact with my coworkers at the Indianapolis International Airport, and I heard many stories about how the economic injustices the employees faced at work and in their community were negatively affecting their lives and their children's lives. As a family, they could not afford health insurance. Often times, I observed many coworkers eating very unhealthy diets, presumably because the price was right. In meeting some of my coworkers' families, I saw a high rate of obesity, even among children. I knew that these things were likely not entirely unrelated. There must have been some correlation between the social and economic lives of the adults and the food consumption traditions or habits shared with their children. This experience struck the interest for my current research and my attempts to make sense of a complicated network of factors.

Food accessibility has been intently researched for years. However, the dynamics of the community can become confounding variables in studies of food accessibility and food consumption. Traditional preparation of food for a cultural community (i.e., Latino) may be healthy in general, or may be unhealthy due to lack of resources and time restrictions. For instance, Latinos are "disproportionally affected by poor educational attainment, higher poverty and food insecurity rates, lack of access to health-care, and suboptimal health outcomes" (Pérez-Escamilla 2009:988). Therefore, food choices are

affected by access to money and, furthermore access to healthy foods. Additionally, the Pérez-Escamilla study found that the difference between overweight and non-overweight Latino-American children was due mainly the overall calorie intake disparity between the groups, where overweight children consumed more calories on a daily basis (2009:989). Another issue worthy of investigation is acculturation of immigrant Hispanic populations to the United States. Acculturation is defined here as the adaptation of U.S. American traditions and the abandonment of traditional Latina/o cultures. It has been suggested that acculturation strongly contributes to the current dietary state of the Hispanic populations in the United States. A study performed by Wilson and quoted by Pérez-Escamilla states, **"dietary quality among Latino children may be compromised as they assimilate more into the USA 'mainstream' culture"** (2009:989). This is one of many important factors contributing to issues of health status and food consumption. Along the path of this research, other important factors about food access have surfaced. Studies discuss personal choices or cultural influences of food consumption, but they may not integrate these findings with the accessibility of food. These factors cannot be ignored when considering the health of populations. Understanding the intricate relationship between food choices and food accessibility is vital to the realm of urban public health. This paper attempts to investigate these relationships and relate the findings to the local sphere, in Indianapolis, Indiana.

Throughout the paper, I will use both terms that refer to the population of interest, Latino and Hispanic. A recent article from the Huffington Post stated that the federal government uses both terms to describe the ethnic origin of populations. More importantly, when people of the population were asked, many preferred to be identified

by the term "Hispanic" almost twice as frequently as the people who preferred to be identified as "Latino" (Barrera 2013). Some people of the population would prefer not to be referred to by either term, as it may carry some prejudice in places like the U.S. However, for the purposes of being able to refer to this growing ethnic minority in the U.S., I will use both terms in the paper. The authors of various studies use both terms, and I have not altered their quotations. In cases where I am attempting to refer to Hispanic females and mothers, I will use the term 'Latina', as it is more distinct to this subgroup.

The investigation into the literature has revealed substantial points that become the centerpiece of this paper for various reasons. These topics are health and access as it relates mainly to diet, socioeconomic status, residence, and acculturation. One of the most notable identifiers of health is food consumption. Additionally, what foods are consumed can be heavily impacted by what food is available. This availability is in turn determined by location, transportation, money, and type of food outlet. All of these are discussed in the upcoming sections and subsections of the paper.

Food Access

Food security is defined as "access by all people, at all times, to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy lifestyle" (Pérez-Escamilla 2009:990). When individuals or families do not have food access that meets this definition, they are typically referred to as 'food insecure' (Cook and Frank 2008:3). Cook and Frank describe the qualifications for the variations and combinations of being food insecure and hungry (2008:2). A household, an

individual, or a child/children can be food insecure. This means they may experience varying degrees of accessibility to food due to factors like poverty, location, transportation issues, and health status (Frank and Cook 2008:3). Additionally, a household, individual, or child can experience instances of hunger (the physical state) when their food insecurity becomes severe.

Though there are many factors that impact the health status of urban populations, Eisenhauer states that "Food is arguably the most critical 'thing that promotes health', and in urban areas food choice is often severely constrained" (2001:125). This paper aims to discuss the main factors that affect food consumption in urban populations, with the overarching connection being food accessibility and health status. For many years, there has been systematic study applied to the relationship between nutritional intake and the variety of health outcomes. "Only with the emergence of interest in and, more recently, a UK policy focus on health inequalities, has the link been made explicitly between food retail access and dietary intake" (White 2007:99). In this 2007 publication by White, he emphasizes that within the early 2000s, two realms of research combined: the realm investigating the existence and dynamics of urban 'food deserts,' and the 'obesogenic environment' (White 2007:99). White clarifies that when the term 'food desert' emerged, it was slang and did not have research to support its existence or severity. However, after many researchers spent time investigating the issue, they found that there were observable patterns of differential food access, specifically in urbanized areas (2007:99). The intention of investigating food access and health status simultaneously is to help clarify a possible causal link between the two scenarios. In fact, in recent literature, the term 'food swamp' has developed. It is used to refer specifically to areas that lack access

to healthy food. The term 'swamp' serves to exemplify the oversaturation of unhealthy food choices from fast food outlets and convenience stores (Kolata 2012). This is why studying food access and obesity/health status is the most critical path to accurate representations of communities. For example, are urban residents gaining weight and becoming obese because of the poor quality of food accessible in their environment? It would be ideal to perform a longitudinal study of this nature, as White suggests, to benefit the health of urban communities by addressing food access-related issues.

The next three subsections will discuss some vital influences into the health of urban Hispanic populations. Food access is the context in which each category is addressed. This will then be related specifically to implications about the Indianapolis community.

I. Socioeconomic Influence and Food Consumption

"During the second half of the twentieth century, Latinas, particularly those living in Central American countries, endured severe political, economic, racial, and gender oppressions" (Masley 2003:32). The disadvantages that Central and South American peoples faced throughout these times significantly contributed to the influx of Hispanic immigrants to the United States. "Hispanic families disproportionately have incomes below the poverty level compared with non-Hispanic white families (18.5% and 5.3%, respectively)" (Mazur, Marquis, & Jensen; 2003). As discrimination against lower-income individuals is marked throughout the literature (Sawhill 1976), this higher rate of poverty among Hispanics comes with social discrimination that becomes entangled with

racist assumptions. Subsequently, there has been common discrimination in the United States against anyone who identifies as Hispanic for many reasons including their culture, their socioeconomic status, and the language they speak or do not speak. "Discrimination is seen as a major problem in keeping Hispanics from succeeding in America" (Hakimzadeh and Cohn 2007:1). Examples in many different areas show that overall, the economic discrimination against Hispanics spans from job availability/quality (Darity Jr. and Mason 1998) to housing options (Yinger 1998). Both of these studies tied the factor of inequality in these realms to a decreased access to a good education, better-paying or more upwardly-mobile jobs, and healthful foods.

Though Hispanic families are not the only ones affected by the stress of employment, this stress has a noted correlation to food choice. Devine et al. (2009) reported that overall food preparation time in the American household has decreased, and additionally more families are obtaining meals outside the house (either fast-food or full service restaurants) (2009:366). This study reported that working mothers would frequently skip lunch due to scheduling conflicts or lack of resource (money, food) (2009:368). This study shows that the stress of work can directly affect food choice, not just on a personal level, but the family level as well. Devine and colleagues also found that single-parent households reported experiencing a higher frequency of work-family conflict, and "more difficulty managing family food and eating" (2009:370). This puts single-parent households at a distinctive disadvantage in the area of food management, resulting in the implementation of food coping strategies that are notably unhealthy (meal-skipping, rushed meals). This meal-skipping behavior directly relates to much of

the Hispanic population who has been known to work long hours, hold multiple jobs, and sometimes experience long commutes.

This addresses the under-recognized contributing factors to health status outside of food consumption variables. Obesity has been noted to have significant correlations with lack of exercise and activity (Philipson 2001), poor sleep (Dixon et al. 2001), stress (Nishitani and Sakakibara 2006), and epigenetic factors (Campión, Milagro, and Martínez 2009). Though this paper gravitates toward the issues of food availability in the local community, it should be well-noted that comprehensive descriptive studies need to be performed in order to delineate the dynamics of these influences on the health status of communities.

White's 2007 publication points to the distinctive differences of typical food consumption as it relates to household income. "The nutritional quality of dietary intake is strongly patterned socioeconomically" (2007:99). Although White is based in the United Kingdom, he mentions that in the U.S., studies of the early 2000s began focusing on many environmental factors that possibly affect food consumption (2007:99). These environmental factors are highly related to a subject's residence and place of employment (if applicable), which is addressed in the following section. Most notably, the general agreement in the literature suggests that individual socioeconomic factors often limit food accessibility and quality. Another section of influence is the socioeconomic status of a neighborhood in general. The dynamics of this are interesting and often under-investigated. More specifics about this are discussed later.

Relating specifically to Hispanic populations, "Hispanics' tendency to exhibit more nutritious diets despite their lower average socioeconomic status has prompted the

assertion of culture-based protection against adverse health effects normally associated with low income" (Mazur, Marquis, and Jensen 2003:1120). This study is ten years old, and there are also controversial findings in the literature about this topic. The increased rates of childhood obesity in Hispanic children in America suggest that this assertion by Mazur, Marquis, and Jensen may not be accurate. In order to determine more substantially that Hispanic families living in the U.S. consume a more nutritious diet, there would need to be a large scale market research. Then these data could be compared to the health status of that population.

To clarify this discrepancy, the literature suggests that the disconnect between Hispanics generally maintaining a nutritious diet based in cultural influences and the rise in childhood obesity rates in the Latino population may be due specifically to price. Not all of the Latino population living in the United States can be immune to the price and availability factors. "In general, people may possess knowledge about healthful food choices, but when considered in tandem with the choice dimensions of price and taste, they may choose the tastier and cheaper, but less nutritious, food" (French 2003:842S). Additionally, it is suggested that the cheaper options of buying bulk amounts of pre-packaged goods with a long shelf-life can be high in carbohydrates. These carbs give the feeling of being full for a short period of time, but they may not have much nutritional value. An example of this is the use of refined grains in many products, which are often low in cost. Putnam, Allshouse, and Kantor compiled some numbers about grain consumption from 2000. They found that the average U.S. American consumed more than the recommended servings of grains per day, and the vast majority of these grains were refined grains instead of whole grains (2002:4). A study that focused on the

outcome of individuals eating whole grains versus refined grains for a short time states that whole grains have been speculated to have protective effects against many chronic diseases like diabetes, obesity, and certain cancers (Newby et al. 2007:1745). In the study, there was a preliminary result that the women who were eating a larger amount of refined grains had more irregular insulin activity, suggesting a trend toward diabetes. The researchers were uncertain about the sex effects of grain consumption, but report that women may be more sensitive to the effects of eating various grains (2007:1752). Using the information from these two studies, it can be projected that Latina women who immigrate to the United States may encounter refined grains more frequently, possibly placing them at a higher risk for chronic disease development.

Returning to how this issue relates to people of lower income, a 2005 paper by Drewnowski and Darmon reiterates that "more nutrient-dense lean meats, fish, fresh vegetables, and fruit generally cost more" (2005:265S). Additionally, they mention that the energy-dense (high calorie) foods are actually less satisfying, which can contribute to overeating at all points in the day if the individual feels he or she is not full (2005:265S). Therefore, having less access to nutrient-dense foods for the lower income families in an urban setting is a prominent example of food choice affecting health status.

There are critics that believe food choice is independent of financial or locational issues. In opposition of this misconception, French and her colleagues conducted a study that lowered the cost of fruits and vegetables in two schools to investigate if consumption would increase. One school was a mainly white suburban school, and the other was a more diverse urban school. The results showed that fruit and vegetable consumption increased greatly in both schools, but most prevalently in the urban school (French

2003:842S Figure 2). Included in the Appendix, I have placed the figure from the study that demonstrates how important cost is when affecting the decisions of consumption (Figure 2). This price reduction is a great way to help combat one of the largest impediments to urban populations consuming nutrient-dense foods.

The subpopulations that seem to have the most significant tie between health status and food access are women and children. "Food insecurity has been associated with suboptimal child health and development, depression and obesity among adults, especially women. Thus, achieving food security, among vulnerable groups should be a national priority" (Pérez-Escamilla 2009:990). Added to the minority status of the Hispanic population, these 'vulnerable groups' face even more difficulty. More details are provided in the section discussing common setbacks for the Hispanic population in the U.S.

A website called SAVI.ORG, sponsored by The Polis Center and IUPUI provides statistics and demographic breakdowns of Indianpolis' townships. Compared to the Marion County average, Wayne Township is the worst off economically. The qualifiers for this ranking are shown in Table 3 in the Appendix. Wayne Township also has the highest Hispanic population of any township in Marion County (Savi.org, See Table 1 in Appendix). The statistics do not clarify a line of causation between the Hispanic demographic and the socioeconomic status. It does not indicate that all Hispanic families that reside in Wayne Township are impoverished. Instead, this data does show that if the community economy is weak, it cyclically destabilizes all of its residents. An example of this phenomenon is businesses in the area. When people in an area starts losing the financial ability to purchase specific items, the outlet for that item often closes its

affected locale and relocates to a spot that is more profitable. This applies mainly to specialty stores. While there are many check-cashing stores, auto repair shops (some Hispanic-owned), and fast-food outlets that line South Washington Street and Rockville Road in Wayne Township, there are no sporting goods stores or jewelry stores. These businesses instead target populations on the northside of Indianapolis, a wealthier area. This exaggerates the *de facto* segregation of low-income families and communities from more economically diverse areas. This exile is what most exacerbates the economic despair in this area. The lack of economic diversity can most drastically affect the quality of the schools in the area, as school funding is based upon the property taxes of the area: both personal and business property (Kenyon 2007).

This pattern of economic status has an enormous effect upon the food accessibility of the residential population. For example, here in Indianapolis, the new year brought bad news for Marsh Supermarkets. Though Marsh is not a national chain, it is a popular chain in Indiana and has expanded to Ohio. Marsh announced in early January 2014 that they would be closing eight stores by the end of the month. Three of these closures are in the city limits of Indianapolis (Sikich: Jan 10, 2014). One of stores closing is located in Speedway, located in Wayne Township which has the highest Hispanic population percentage of any Marion County township (Appendix, Table 1). SAVI.ORG states that Wayne Township's Hispanic population as of 2011 is 15.3% of the township population. This makes it the township with the highest percentage of Hispanic residents in Marion County (Savi.org). The Indianapolis Star article written by Chris Sikich mentions that the company of Marsh Supermarkets has had a great deal of financial trouble in the past (Jan 10, 2014). However, it should be noted that across the

board, the first stores to close are typically the ones that provide the least profit to the company. The least profitable stores are more often in poorer districts. How this affects the urban population specifically relates to the areas of residence of the population and its relation to points of food access.

II. Residence

Location, location, location. Place of residence is important for many reasons: proximity to work, school, and food are all very important factors. "In 1998, 40% of the 939 diabetic adults surveyed in East Harlem, New York, a predominantly Latino area, stated that they did not follow the recommended dietary guidelines because foods necessary to maintain a diabetic diet were less available and more expensive in their neighborhood grocery stores" (Inagami et al. 2006:10). Because supermarkets consistently have lower prices than smaller, local businesses, many shoppers prefer to shop at supermarkets. However, in urban areas, small stores are typically the only choice for shopping nearby a person's residence. If there is little access to transportation, then this may be the only option for shopping. These smaller stores typically have less variety, and higher prices. This study concluded that there is a relevant correlation between socioeconomic status and BMI: a higher BMI correlated with a lower socioeconomic status (Inagami et al. 2006:15), illustrating the relationship between residential financial stability and health status.

Speaking more to the developmental forces urban 'food deserts', White talks about the industrialization of agriculture in the 1960s in both the U.S. and the UK. Supermarkets were made possible by the increasing production and transport of national

brand food goods. This first stifled the smaller production companies and farmers, if they were unwilling or unable to join the larger national brand. Later on, large supermarkets developed their own brand of many food and non-food products to undercut national brand prices. White reiterates that the socioeconomic factors of the city were also a developmental factor for these supermarkets (2007:100). Supermarkets are not randomly assigned to locations, but instead are strategically placed for optimal profit. On the surface, this appears very logical and would seemingly result in the placement of supermarkets in highly populated areas of the city. White mentions these supermarkets are generally placed on "main arterial or circular roads near to major urban conurbations" (2007:100). A 'conurbation' is a term used to describe an area that may include multiple distinct urban sections (like townships) located adjacent to one another. However, these areas of placement are not always successful. The deterioration of the economy in certain areas of the city strongly influences many retailers to close stores and move to more prosperous areas: recall Marsh Supermarkets' decision to close many unprofitable or underperforming stores.

With the capitalist forces dictating where supermarkets are located, many communities are left to purchase food from convenience stores, etc. A critical study in 2006 performed by Morland, Roux, and Wing discovered that the existence of a supermarket in a community reduced that community's risk of obesity and overweight status, while a convenience store in the community increased the risk of obesity and overweight status (2006:333). If there is only a convenience store available to residents of a community, they are more likely to be overweight because of their limited choice of food. People of higher income have better options to choose their residence based on its

relative location to many resources, including supermarkets. However, people of a very limited income do not have this freedom and may become essentially 'stuck' in an area that has very limited food resources.

An example of an area with limited resources is Detroit. Many Midwesterners know that Detroit's economy has been devastated for many years with the fall of the American car industry. There is a large Black population that resides in Detroit, and this population was the focus of 2005 study published in the American Journal of Public Health. This study incorporated socioeconomic status, racial demographics, and the location of neighborhoods in relation to the location of supermarkets. The research team found that the dense populations of Black residents in impoverished neighborhoods had a longer commute time to access the supermarket than other neighborhoods (Zenk et al. 2005:663). This restricted access to supermarkets more pointedly affects the Black residents of Detroit, and later in the paper I discuss the similarity in Indianapolis with the Hispanic population. Zenk et al. said "working to attract supermarkets to economically disadvantaged African American neighborhoods in Detroit is a specific economic development strategy that may directly improve food access" (2005:665). Indianapolis should incorporate a similar program to coordinate food access programming.

In 2007, Bodor and colleagues published a study that investigated the impact of smaller food outlets on fruit and vegetable consumption in an urban setting. The study found that smaller food outlets had much less physical shelf space to store, present, and sell their fresh food items (2007:414). However, even with this reduced choice scenario, Bodor and colleagues found that the surveyed residents that lived about 100m from the small outlet were more likely to consume fresh food (2007:413). However, outside of this

100m radius, the likelihood of consumption reduced steadily. In the face of supermarkets closing, investigating other food outlets is important. How this applies directly to the Indianapolis community is discussed later in the paper.

III. Transportation

One of the most critical factors of food accessibility is transportation. The previous section addresses the constraints that correspond with issues of residence and availability. These are also incredibly intertwined with the factor of transportation. For example, for the families that have an income of less than $10,000, it may be nearly impossible to own and maintain a car. Car ownership can be particularly challenging for Hispanic immigrants who are not documented to live in the United States. Of course, there are alternatives to car ownership such as the public bus system, riding a bike, and walking. However, these systems have their flaws as well, such as the difficulty of transporting food for a family home from the store via bus, bike, or on foot.

Specifically regarding Indianapolis, the lack of public transportation has been highly criticized. NUVO is an Indianapolis publication that reports about many issues like development of transportation. In a 2011 article, Tyler Falk wrote that more people walked to work in our city (1.7%) than took public transportation (1.0%). This is an incredible statistic demonstrating the miniscule scope of the IndyGo network. Falk also elaborated that "transportation is a major civil rights issue" with 56.5% of the bus riders in this city being Black, 38.1% being white, and though this article did not specify, the remaining 5.4% likely are Hispanic. "The average wait for an IndyGo bus is 30-60

minutes" (Falk 2011). This is an unreasonable wait for anyone that is dependent upon bus transportation for employment or food access, as it severely limits options.

Bus systems, particularly in smaller cities like Indianapolis, do not travel the entire city. Included in the Appendix, there is an image distributed by IndyGo.net that shows the routes of the Indianapolis bus system (Appendix, Figure 4). This is the only public mass transit in Indianapolis. The map illustrates that the bus routes focus on the heavily travelled streets of the city, but do not venture much farther than this. Specifically, there are many areas that are not directly served by the bus system in both Pike and Wayne townships of Indianapolis. These townships are later identified to be the two most Hispanic populated townships in Indianapolis (Appendix, Table 1).

Additionally, smaller city bus systems do not run with the same frequency that larger bus systems do: the number of public transit users in Indianapolis has not required the development of nearly as many routes as in more densely urbanized cities like Chicago. In Indianapolis, the bus system is the only option for public transport. There is no above- or below-ground rail system, and the few taxis that serve the Indianapolis community are concentrated at the airport and downtown. The price range of taxis in Indianapolis is also incredibly costly for daily use. This leaves the main modes of transportation in Indianapolis to be personal vehicle, public bus, bicycle transport, or walking. In the Appendix, Figure 3 shows the routes for the IndyGo bus system of Indianapolis. When compared to Figure 1 of the Appendix, it is clear that there are fewer bus routes the further from Central Township one lives. This is very restrictive not only for food accessibility, but also possible job and healthcare transportation.

Biking is very climate dependent, as is walking. The seasonality in Indianapolis leaves only a portion of the year open for biking and walking. Time constrains these modes of transportation as well as the size and composition of food purchase. It may take a fair amount of time to walk to a supermarket (obviously contingent upon residence), and this distance can limit how much a person can purchase in one trip. Additionally, if the weather is too hot, it may not be logistically possible to buy frozen foods and refrigerated foods and arrive home before these foods spoil. Carrying groceries on a bike or on the bus is difficult due to size and composition of purchase.

Overall, transportation is closely related to residence. If a person is fortunate enough to live nearby a grocer/supermarket and job (if applicable), his or her need for transportation decreases. If a person does not live within a reasonable distance of these locations, his or her transportation need becomes more urgent.

Acculturation and Food Consumption

Bermudez and Tucker (2003) describe that there is an increasing intake of "total fat, animal products, and sugar... despite the decrease in consumption of cereals, fruit, and some vegetables" (S87) in Latin America. These authors present a strong argument that industrialization in Latin American nations has effectively changed the diet habits of residents. This is an important factor specifically to people who immigrate to the United States. The increase of 'fast food' type diet is related to a decrease in traditional food preparation in Latin American countries. The causation of reduced traditional food supply has been attributed to the widespread effects of globalization (Bermudez and Tucker 2003:S88). From 1970-1972, many Latin American countries claimed that a large

portion (51.8%) of their diet consisted of cereals, roots and legumes. However, from 1995-1997, this percentage dropped to 45.2%, and there was a noticeable increase in the consumption of meat and sugars (Bermudez and Tucker 2003:Figure 3).

Additionally, there has been a significant reduction in the consumption of fruits and vegetables in Latin America, circa 2003. "Lower consumption of fruits and vegetables may place Latin Americans at increased risk for chronic diseases" (Bermudez and Tucker 2003:S96). The traditional foods of many Latin American countries are rich in complex carbohydrates, fiber, micronutrients, and phytochemicals (plant-based nutrition) (Bermudez and Tucker 2003:S97). However, because this diet is being abandoned for a diet high in sugars and fats, there have been significant negative health results. This indicates that for immigrant populations, it is not solely the factor of living in the U.S. that has changed their diet. Instead, the diet in their home countries has been changing for a decade. An additional factor that is important to consider is how this 'globalized' diet can follow a transient population wherever it goes. Families that are relatively new to the United States may not have adapted their diet. Instead, the same general changes in food availability that has been documented in Latin America, may be similar to the present conditions the United States.

One major force that impacts food availability is the retailer. Latin America has a history of open-air markets that sell local produce from the region. However, an article published in the Journal of Latin American Geography in 2007 identified that there has been a shift in this dynamic toward the development of large-scale supermarket retailers. "The dual forces of neoliberal economic reform and the application of information technologies have facilitated the expansion of a handful of major retailers, including Wal-

Mart, Carrefour, and Ahold, into international markets" (Biles et al. 2007:57). The article goes on to state that Wal-Mart, as of 2007, owned and operated over 1,000 stores in Latin America (Biles et al. 2007: 58). This includes stores that the Wal-Mart Corporation has acquired from other companies. This has two main implications. First, the local growers of Latin America are either edged out of the market, or required to begin selling their product to the international corporations. Secondly, the available food in these retail outlets is grown in accordance with international food sourcing. While this second point allows more choice for Latin American residents, this choice is different from the typical fresh fruit and vegetable experience of local food markets. In the early 1990s in Mexico, only about 20% of food sales were national/international supermarket chains. The remainder were regional stores or smaller outlets, including independent vendors (Biles et al. 2007: 58). However, the content of modern supermarkets is heavily laden with processed foods that are high in calories and refined grains (Putnam, Allshouse, and Kantor 2002). Lower availability, lesser quality, and higher cost of fresh vegetables and fruits (low in fat and carbohydrates) greatly reduces the ability of any low-income consumer to buy these nutrient-rich foods. This represents the global effects of food sourcing and distribution: the westernized supermarket with processed foods is now available worldwide.

Carrera and colleagues performed a study in 2007 that focused on the dietary habits of Mexican Americans. As an additional note, this study is highly applicable in Indianapolis because the majority of the Hispanic population in Indianapolis is Mexican or of Mexican descent (Appendix, Table 2). The Carrera et al. study divided participants into four main categories, including those consuming the "traditional Mexican diet." The

study found that this traditional diet, while high in legumes and fiber, is also high in cholesterol and study participants' BMI and waist sizes were high, with similar findings of BMI and waist size in the other dietary groups (2007:1735). In the background information of this study, the authors demonstrate that the food preferences of Mexican Americans can differ from other ethnic groups, even if these populations are not eating traditional foods. Specifically, a study in Mexico confirmed that there is pattern of consuming high calorie foods throughout the socioeconomic strata, and an insufficient consumption of fruits and vegetables (Carrera et al. 2007:1736). The roles that cost and location play in food purchasing have been discussed, but this 2007 paper helps clarify the pattern of food consumption in Mexico. If many Mexican citizens are not accustomed to eating fruits and vegetables, for whatever reason, then they are unlikely to pick up the habit by moving to the United States. As discussed above, the difference between the supermarkets in Latin America and the U.S. may not be as drastic as previously believed. It is also important to mention that the researchers were performing an observational survey of what the typical Mexican American eats. The groupings were a natural dissection of the dietary patterns of these individuals, however there was no one group that was designated as 'healthy' (Carrera 2007:1739). This information speaks to the overwhelming dietary patterns in Mexican Americans, and studies have linked these patterns to the factors previously mentioned: socioeconomic status, residence, and transportation.

Although Mazur, Marquis, and Jensen assert that Hispanics in the U.S. tend to still consume more vegetables and fruit than other low-income groups, Akresh reveals that this may not remain true over time. In her publication from 2007 in the Journal of

Health and Social Behavior, Akresh declares that "research often describes immigrants as healthier than the native population when they arrive in the host country, and finds that, over time, their health declines" (2007:404). This suggests that assimilation may be a significant force resulting in immigrant populations changing their habits. Again, these 'habits' are highly subject to the availability of resources, as previously discussed. This acculturation of the Hispanic population seems to be the un-doing of healthful habits and the introduction to a more difficult acquisition of healthy foods when relocating to certain urban districts. As an extension of their 2007 work, Bodor et al. published a paper in 2010, which showed a critical correlation between urban obesity and the lack of a supermarket within a person's zip code (2010:771).

Acculturation is an incredibly complex issue, and is molded by many factors that vary based upon the population's origin and the city of settlement. The studies mentioned have some conflicting results that leave an unclear picture about Hispanic food acculturation in the United States. However, these results can lead future researchers to discover possible patterns that were previously unseen. For the purposes of this paper, the research on acculturation serves to exemplify that mass development of supermarkets in many Latin American countries within the last decade shows the 'westernization' of the food supply internationally. This distinct change suggests that Hispanic immigrant acculturation to food may not be as drastic as previously thought. As for the average fruit and vegetable consumption of Hispanic families, the literature points to the notion that location of residence and food availability at local food outlets may be a stronger determinant of diet than cultural heritage. Though this is not monolithic to all Hispanic families, it does imply that transportation, money, and availability are the main limiting

factors preventing Hispanic urban poor from freely choosing the composition of their diet.

Common Setbacks for Hispanics in America

I previously mentioned the issue of prejudice as it applies to Hispanic immigrants in America (Hakimzadeh and Cohn 2007:1). Perhaps more tangible restraints that confine some in the Hispanic community are language barriers and legal status. "In Mexico, 16% of public schools teach English, generally for two hours per week" (EducationFirst.edu). The site goes on to express that there are nine states in Mexico that have no English training at all. Of the residential Mexican adults that were surveyed, only 2% claimed to be highly proficient in English. Again, the statistics for Mexico are being addressed here since generally, the majority of Hispanic residents in Indianapolis are Mexican, or of Mexican descent (Appendix, Table 2). Language proficiency data for Marion County show that 7.1% of the population considers Spanish their household language (Savi.org).

In the New England Journal of Medicine, Dr. Glenn Flores shared a personal emergency room story where he was treating a young Latino boy. Flores expressed that he was relying on this 12-year-old to translate vital information to the boy's mother. Flores then goes on to explain that language barriers are a serious issue that can impede medical treatment and health care access (2006:229). Though health status is an overarching theme of this paper, language impedes more than just direct access issues. Without proficiency in English, many Hispanic immigrants to the United States are left with seriously constrained employment options. There is little room in the United States economy for employees that do not speak the national language. A common result of this

is immobility in jobs that are attained. Once non-English speakers acquire a job (migrant work, agriculture, food service), there is not a high likelihood of upward mobility if the person does not learn English. Subsequently, many companies are unwilling to offer significant pay increases for entry-level jobs (Kossoudji 1988:207).

A final important factor to consider in the conversation of food access for Hispanic populations is legal status. "As of March 2005, the undocumented population had reached nearly 11 million including more than 6 million Mexicans..." (Passel 2005:1). It has become increasingly clear that access to resources in the United States is highly dependent upon this legal status. I previously mentioned that undocumented individuals may have a difficult time in the realm of car ownership, which contributes to issues of transportation. A non-citizen also faces incredible difficulty when applying formally for any job, or any service of the US government, like food stamps. Permanent residents of the United States have more access to vital programming than undocumented residents. However, many local efforts are being made to unify and support undocumented residents of various communities. In Indianapolis, a great example of a supportive organization is LaPlaza, located on East 38th street in South Lawrence Township. "Adding undocumented status to the already troubling mix of unfavorable conditions severely undermines efforts to move out of poverty" (Abrego and Gonzales 2010:148). Both language barriers and legal status are highly correlated with remaining in poverty, or very near poverty. This again leads back to the main significant issue of economic limitation effects on food consumption (French 2003).

Implications for Indianapolis

Focusing in closer to our state's statistics, 16.3% of Indiana residents experience food insecurity, and one-third of this food insecure population of Hoosiers are children (Gleaners.org). Gleaners is an organization based on the Far Southwest Side of Indianapolis. They donate to organizations in over 21 counties. Marion county alone has 275 food pantries and partner organizations to whom Gleaners distributes food and resource (Gleaners.org). Public schools are listed alongside numerous religiously affiliated organizations. Indianapolis Public School #96, Meredith Nicholson has a student population that is over 80% Hispanic. In fact, the children of my original ethnography attend this school. I will detail the information I gained from this family in an upcoming section. The school's location falls between the areas of Pike and Wayne Township, both townships having high percentages of Hispanic residents. IPS #96 is listed as one of the recipients of Gleaners food donations, part of a program called 'Backsacks Weekend Food for Kids'. This program identifies the many locations throughout the city where children are 'food insecure' (Cook and Frank 2008:3) and therefore qualify for this assistance.

Gleaners is part of the national program called Feeding America, and they have implemented these weekend food programs for kids across the nation. Megan Ellis, an employee of Gleaners told me that the menu of the 'backsacks' changes occassionally, but generally contains the same types of food. The food is not from donated sources, but is purchased because they want to provide consistency, and attempt to provide nutritious food. This is made more difficult by the parameters of the program. Since this food goes home to many low-income families, Gleaners must provide food that does not need

refrigeration or microwaving, in the case the household does not have those appliances. The food in these sacks is usually a variant of these components: canned ravioli (pull-tab top), crackers, granola bars, puddings, and juice boxes. There are enough items to provide six meals for the child over the weekend: three meals for both days. All of this food is put in a plastic sack and distributed to children who qualify for the program. Each school has coordinators that are trained by Gleaners staff in order to identify the students who are **most "chronically hungry". (Megan Ellis, Phone Call March 14, 2014)**. This program is incredibly widespread, as it serves over 10,000 students per week throughout 21 counties of Indiana. Though this program works to fight hunger, it is not as nutritious as it could be. Of course, there are constraints about food spoilage, however, the diets provided are high in carbohydrates, refined grains, and sugar. In the beginning, I discussed how food of this type is likely contributing to poor health status of urban populations (Page 8).

A map showing the townships of Marion County is provided in the Appendix, Figure 1. Pike, Wayne (includes Speedway), Center, Lawrence townships had a 3% Hispanic population or above in 2000. However, Marion County has seen its Hispanic population more than double in just 10 years, from just over 30,000 to over 80,000 people in 2011 (TheIndyChannel.com). The locations where Indianapolis Hispanic populations settle are not random nor evenly distributed. The U.S. Census estimate for 2012 (compiled from trajectories of the 2010 Census) shows a 9.7% Hispanic population in Marion County (Census.gov). Kelly Carter is the neighbor liaison for the West and Southwest outer district, which includes parts of Wayne and Perry Townships. She stated that West Washington Street had some businesses that were Hispanic-owned, mainly Mexican. She also stated that the near Westside had a high concentration of Hispanic

residents (Phone Call: March 14, 2014). Indianapolis was recently ranked as the 60th largest Hispanic metropolis by percentage in the United States. While this may not seem all too significant, in relation to the rate of Hispanic population growth in Indianapolis (Appendix, Table 1), it is an important indicator of probable future growth (Motel and Patten 2012:19).

Earlier, I identified the three townships in Marion County that currently have the highest Hispanic population: Wayne, Pike, and Lawrence (Appendix, Table 1). When taking a closer look at the overall economic status of these particular townships, Wayne Township was found to fall behind the Marion County average in all categories observed (Appendix, Table 3). It is important to note that this correlation cannot be presumed to be causational. It simply shows that in the same township where there are many Hispanic residents, there is also great economic distress. However, this correlation is an incredibly important finding because it shows a snapshot of the socioeconomic situation for many Hispanic residents of Marion County.

From the literature, there are a few vital implications about socioeconomics that should be noted, with the future development of Indianapolis in mind. White's 2007 study reminds us that diet is patterned socioeconomically (2007:99). White is arguing that groups in different strata of income have different foods that are targeted for purchase and consumption. As discussed in the paper, the additional factors that guide these purchases may not stem directly from personal choice, but influences like location of stores, availability of food, price of food, and shelf-life of food.

In Indianapolis, when it comes to the argument about neighborhood and locational influences versus individual or cultural influences, there are still many unanswered

questions. Mazur, Marquis, and Jensen demonstrate that there is cultural cohesion between groups like the Hispanic residents of a town (2003:1120). Their research has suggested that the choices to consume more fresh food than other minority groups (though still insufficient for Daily Recommended Values) is an example of cultural cohesion. However, it is incredibly difficult to imagine that the multiple residential clusters of Hispanic families (in Indianapolis: Wayne, Pike, and Lawrence Townships) have equal access to fresh food. This again brings in the questions of retail availability, cost, distance, and transport.

From the examples discussed about Hispanic food acculturation in the United States, it shows that westernization of supermarkets has influenced the far reaches of the globe. Therefore, if populations immigrated to the United States in recent years from Latin American countries, they may not see much of a difference in product availability. My experience living in Panama for three months reminds me of how similar the supermarket in Panama is to the supermarket just down the street from me here in Indianapolis.

All of this information is directing the focus of the food accessibility issue to a few main discrepancies. The combination of residence and transportation issues when related to food consumption are astoundingly important in Indianapolis. In fact, in regards to this issue, Indianapolis is reported to be the worst city in the nation. This was demonstrated by a simple compilation study using data about the location of cost-effective healthy food and the relative location of residential neighborhoods. The program measures food accessibility with an application entitled "Walk Score", since it calculates the walking distance between a residence and a food retailer. As shown in the

Appendix under Figure 5, Indianapolis scored the worst in the nation, because only 5% of the residential population could walk to a food retailer in five minutes (Lerner 2014). While a five minute walk may seem like a very small time expectation for some, it is a reasonable expectation for residents of the city who do not have access to a car. Additionally, with Indianapolis in the worst ranking for this statistic, it is obvious that the city's food accessibility needs great improvement.

Confirmation that location is a critical factor for health status, Chen and colleagues directed a heavily mathematical calculation finding correlations between Marion County health statistics and food source records. The data used were from 2005, and the calculations suggested that "increasing fast food has a positive effect on BMI while increasing chain grocers has a negative effect on BMI" (Chen et al. 2009:12). This means that an area saturated in fast food outlets is more likely to have a higher average BMI, while an area saturated with chain grocers is more likely to have a lower average BMI. The authors also discussed that unobservable neighborhood effects (such as culture and social interaction) are variant and hard to account for (2009:12). This is why studies of this nature are difficult to perform, but are an important indicator of neighborhood health in relation to food source.

Liu and colleagues (2007) performed a similar investigation as Chen et al. (2009). The Liu et al. study first identified the townships of Marion County as either high density or low density in terms of population. Wayne and Lawrence Townships were categorized as high-density, while Pike Township is a low-density township. Subjects participating in the study were children ages 3-18 with over 7,000 participants in all (2007:317). The composition of food sources were identified as either convenience store, fast food, or

supermarket. The average distance from a subject's house to any of these locations was then calculated. The graphic from Liu et al. 2007 is reproduced in the Appendix, Figure 6. In short, the study found that Wayne and Lawrence Townships had a lower income than Pike Township by about $10,000/year on average. Wayne and Lawrence subjects lived, on average, further away from supermarkets than Pike subjects. On the other hand, Wayne and Lawrence subjects were on average closer to convenience stores and fast food outlets than Pike subjects. This information illuminates that two of the three highest Hispanic population townships of Marion County are living on average closer to fast food and convenience stores than supermarkets. If we extrapolate the findings from the previously mentioned study (Chen), then the differential availability observed in Marion County can be clearly related to the BMI of the various populations. Overall, access to fast food and convenience stores is higher in six of the nine townships of Marion County (2007:321). This accessibility dynamic may help contribute to understanding why Marion County has a higher percentage of obese residents (30%) than the United States average (27%) (CDC.gov). However, more studies need to be conducted to determine how directly food access may influence obesity rates.

If the overall food accessibility of Indianapolis is truly as poor as Lerner's "Walk Score" information indicates, then it is clear that populations with noted disadvantages are at a greater risk for food isolation. Pérez-Escamilla discusses that women and children tend to be the most vulnerable to poor diets (2009:990), and the additional factors that have been discussed (Hispanic descent, socioeconomic status, residence) only add to the disadvantage that these populations face on a daily basis. IPS school #96, where 80% of the student population is Hispanic, receives food donations from Gleaners based on the

severe need of the children. This speaks to the many difficulties that plague minority populations in Indianapolis. The evidence presented in this paper is meant to illuminate the specific injustices that occur in the urban food access realm. Though I can show many figures to illustrate the relevance and severity of the issue, it is going to take more action to convince some critics that all people deserve a strong system of access to healthful food. In a country that is highly influenced by the ideology of personal merit, it is difficult to draw attention away from personal choices of individuals and emphasize the magnanimous forces at work that prevent true freedom of choice in food consumption.

My Experience

This research began with the intent of including an ethnographic section. This ethnography would communicate and participate/observe single Latina mothers in Indianapolis to better understand how food access may affect their daily lives. Unfortunately, I hit many roadblocks in the process of this research, including my main informant having her phone shut off due to lack of funds. However, I did get the chance to at least briefly meet with this one participant and observe her general neighborhood. Anthropologists are always rather hesitant to extrapolate too much from limited encounters. However, the little interaction that I was privileged during my research is an important confirmation about the information I have presented in this paper. It reveals a ground-level view of life in Indianapolis.

From this point on, we will refer to my informant as Maria. I will not reveal any specific identifiers about Maria or her family for their protection, and therefore will remain mostly in the realm of general statements. Maria is from southern Mexico, an area

which is rather poverty-stricken and has high and varied indigenous populations (Schmal 2008). Maria has two daughters, both are elementary school-aged. In fact, the daughters attend IPS #96, which gives us an idea that they live in one of the most saturated areas of Hispanic population not only in Wayne Township, but in the city. Maria was not employed at this point, and spoke very little English.

When I visited Maria, it was very cold and snowy, which was typical for the terrible winter of 2013-2014. She informed me that on these snowy days, Maria gave the household's only pair of adult-size snow boots to her eldest daughter so that she could walk to school. This prevented Maria from leaving the home while her children were at school. Since Maria's only form of transportation was walking or riding the bus, she relied heavily on the resources that were closest to her. Less than a quarter mile north of Maria's residence is what I refer to as a 'tienda', which means "shop" in Spanish. A typical 'tienda' caters mainly to Mexican immigrants, but also immigrants from Central and South America. Since Indianapolis' Hispanic population is majority Mexican (Appendix, Table 2), many of the 'tiendas' in Indy are Mexican-owned/run.

Maria stated that this 'tienda' that was very close to her home was her main source of food for the family. Maria also told me that she mainly cooked large portions of meals like chili or soup that would last for a while, were cheap to assemble, and provided nutrition and fulfilment. She mentioned that meat was expensive, so they did not consume much meat as a family. The daughters did not pack a lunch for school, but instead received a free lunch at school. The nutrition of these meals was not discussed.

When I visited the 'tienda' on my own later, my main findings were that the vast majority of the food available at this particular 'tienda' was canned food. There were also

significant amounts of processed and packaged foods like bread and snack cakes available. There was a meat counter, although I did not see any prices posted. There was a container of plantains, and a single refrigerated section that had a small amount of vegetables available. Additionally, I noticed the prices on these vegetables was nearly the same price as other supermarkets' rates.

The factors that were most influential to Maria were her socioeconomic status, her location, and her means of transportation. As discussed in the body of the paper, it is simple to pick apart these influences from one another, but in the case of a dynamic community, it is evident that many of the factors are intertwined. Maria's incredible poverty prevented her from purchasing fresh food or a sufficient amount of food for her family. Her poverty and location prevent her from travelling to a larger grocery store that may have more variety of fresh food for lower prices.

Another important factor in Maria's location is the neighborhood economy. Just a few blocks away from Maria's home, there used to be a Kroger store that closed its doors about three years ago. Many people of this area depended on that store for groceries, home necessities, and employment. However, as was discussed in the case with Marsh, the least profitable stores are first to close their doors (White 2007).

The most relevant lesson from my interactions with Maria was that the reality of food accessibility cannot be entirely represented by statistics alone. Maria showed me that her food access and poverty level are a serious issue, but that she is oppressed by a larger system of inequality as well. Without monitoring or coordinating food accessibility in our city, many inhabitants of Indianapolis are essentially trapped by factors outside of their control. Maria gave me the impression that she knew what foods are healthy for

herself and her family, however she is extremely limited in what food she can put on the table. Maria's individual decisions involving food are not to blame here. The systematic separation of Maria from vital resources is a common experience for many Hispanic families not only in Indianapolis, but in urban America.

Conclusions

Health is the overarching theme of community development and food accessibility. It is the hopeful outcome of strong city planning and resource coordination that the health of its citizens can improve. However, the realities of poor economy, residential isolation, low income, and insufficient transportation are hefty problems that impede equality in food access and health for certain populations, particularly minority populations. We return to the statement defining food security by Pérez-Escamilla: "access by all people, at all times, to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy lifestyle" (2009:990). After dissecting limits to food accessibility in Indianapolis, it becomes clear that the definition of food security is not being sufficiently met in our city. Residents who are limited by location and transportation are prevented from making purchases based on their food preferences. The closing of supermarkets around town is preventing some people from purchasing nutritious food. This overall lack of resources for various communities throughout Indianapolis is preventing many from an "active and healthy lifestyle."

An article by Eisenhauer in 2001 addresses the focus of reports about urban health as it relates to social status. She brings about the point that the behavioral approach to

health suggests that individuals make the decisions that directly affect their health. This disregards the influences of community health, and factors outside of the control of the individuals. "Hispanic people diagnosed with Type II Diabetes are admonished to improve their dietary habits and increase their activity levels..." (2001: 125). Since the medical standpoint of health status is often viewed as a 'personal problem' stemming from a lack of self-control, the solution seems so simple: change personal habits. To counter this notion, Eisenhauer provides socioeconomic, geographical, and corporate economic background for why this approach often fails the urban poor, who suffer disproportionately from diseases like diabetes. These "assumptions of unrestricted choice" are devastating to the reality of the urban community's needs, which are intimately connected to the elimination of public resources (parks, transport, large supermarkets) and low income as it relates to food purchasing power and health care (2001:125). One of the best plans that can be implemented in the urban environment is preventative care. The link between food accessibility and health is continually under investigation, but there are trends that indicate higher health status with better food access (Eisenhauer 2001 and White 2007). Therefore, managing food access in our city could have incredible positive influence on our citizens' health and quality of life.

Suggestions for Development

The public resources of an urban area are a vital factor in smart planning for the future. The largest problem that was identified in this paper is the force of capitalism. Money determines both the residence of a person, their ability to move about the city, and

most critically, their ability to purchase food. Additionally difficult is the fact that food retailers are also driven most strongly by money: a search for increased profits. If many of the residents of a certain location are impoverished, there is not much incentive for a failing supermarket to remain open in this location. However, this can have the most devastating effect on nearby residents.

Additionally, the cost of food can be drastically different between packaged goods and fresh goods. French identified this issue when confronting food choice in schools (2003). The school lunch provided the option to purchase fruits and vegetables, but at a higher cost than processed and packaged foods. When the cost was reduced, many students then chose to purchase the fresh food (Appendix, Figure 2). This same notion can be applied on a larger scale, where food retailers are subsidized to provide less expensive fresh food in order to boost the purchase and consumption of it.

There are additional programs that target symptoms of the main issues. For example, delivery of fresh food directly to residents at a low cost can make a drastic difference. Additionally, a coordination of gardening initiatives can greatly reduce cost of food, with the trade-off of physical initiative. There are many locations throughout the city that could be converted to growing space with some investment and effort. If the coordination is overseen by a group like LaPlaza, the plausibility of program effectiveness would likely increase. Culturally competent healthcare and screening is on the upswing nationally, since it has been the subject of many research efforts in the past decade (ex.: Ortega et al. 2007, Lara 2005). With better transportation to grocers/supermarkets for those who need it, accessibility could greatly improve for many residents of Indy, not just Hispanic families. Therefore, a possible adaptation could be

more expansive bus routes, but also vouchers for bus rides for very impoverished individuals. Higher frequency of running times would also be beneficial. Free job training (in Spanish) in all townships of Marion County would be revolutionary for the Hispanic community, along with free English classes. As discussed previously, breaking down the language barrier for immigrants can greatly increase their chances of becoming more economically stable.

There are many additional variables that can be controlled in order to help benefit the populations who are currently neglected by the food consumption system. However, from the implications of the literature reviewed, it is clear that personal choice is not the main detriment at hand. The inaccessibility of food for various reasons seems to impede the success of many underserved populations. For the future of the city of Indianapolis, it is vital to begin constructing better planning and accessibility for all residents when it comes to nutrition. A final statement from Chen illustrates this perfectly: "A cornerstone of urban renewal is to develop the kind of infrastructure that creates and maintains prosperous neighborhoods" (Chen et al. 2009:13).

APPENDIX

TOWNSHIP	2000 CENSUS	2011 SAVI.ORG
Center	5.1	8
Decatur	1.7	4.2
Franklin	1.3	4.9

Lawrence	3.4	8.5
Perry	2.7	6.5
Pike	5.5	13
Warren	2.6	7.49
Washington	3.1	6.6
Wayne	5.4	15.3

Table 1: The growth of the Hispanic population in percentage of total township population. Indianapolis townships of Marion County comparing 2000 Census data and 2011 Savi.org data.

National Identity	Percentage of Total Marion County Population (2010 Census Data)
Total Hispanic Origin	9.3
- Mexican	6.9
- Puerto Rican	0.4
- Cuban	0.1
- Other Countries	2.0

Table 2: Breakdown of national identities of Indianapolis residents, showing percentage of total Marion County population (U.S. Census Bureau 2010).

Township	< $10,000/yr	Public Assistance	Families in Poverty	Unemployment
MARION COUNTY	2.36	3.3	14.2	7.3
1. Wayne	9.35	4.03	17.1	8.71
2. Pike	6.07	2.11	10.7	7.01
3. Lawrence	6.35	2.95	11	6.9

Table 3: Marion County averages for percent of total population with low income, receiving public assistance, families in poverty, and unemployed. These statistics are

compared with the township averages. The townships are listed in descending order of Hispanic population percentage, see Table 1. (Savi.org)

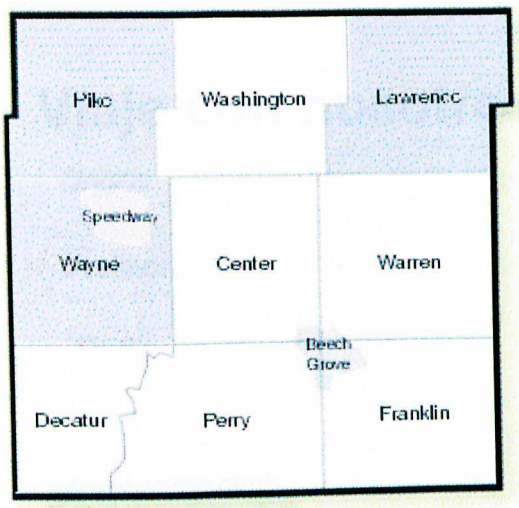


Figure 1: Map of the nine townships of Marion County. The top three Hispanic population percentage townships are highlighted. (Source: Ogdenonpolitics.com)

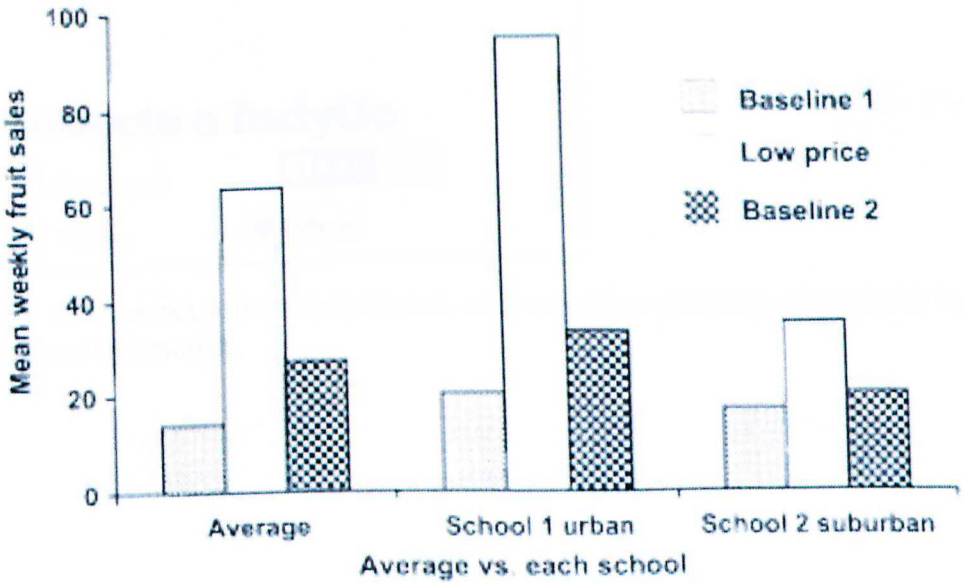


FIGURE 2 Fruit sales as a function of price. From French et al. (16).

Figure 2: Exhibits the change in preferential food purchase upon the reduction of fruit and vegetable prices. The consumption of fruits and vegetables increased most dramatically at the urban school (From French 2003:842S Figure 2).

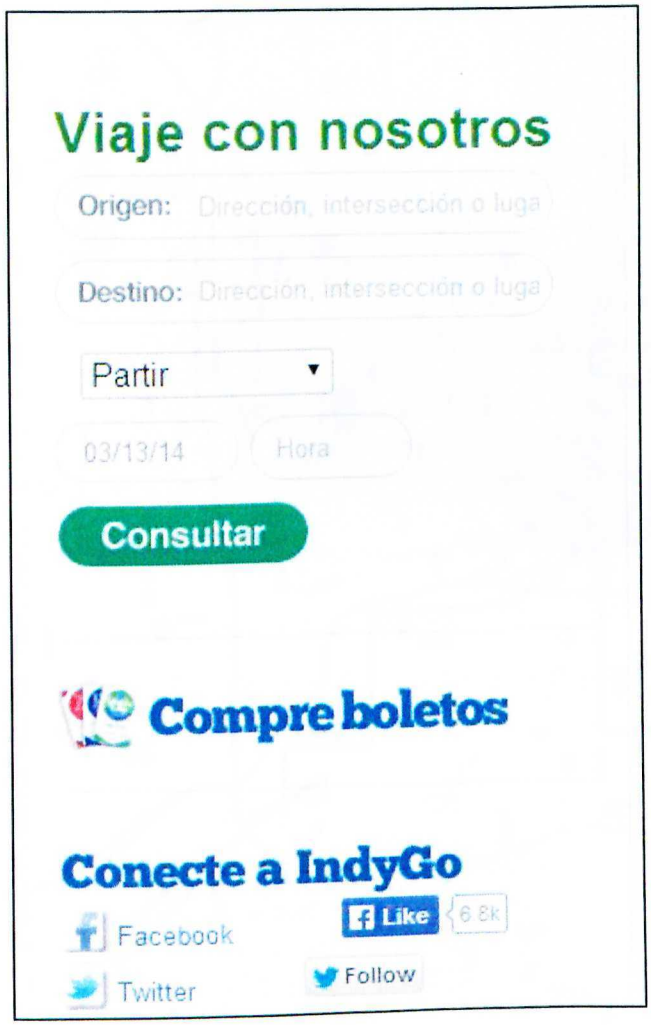


Figure 3: Screenshot from IndyGo.net, showing the availability to purchase bus tickets online and in Spanish.

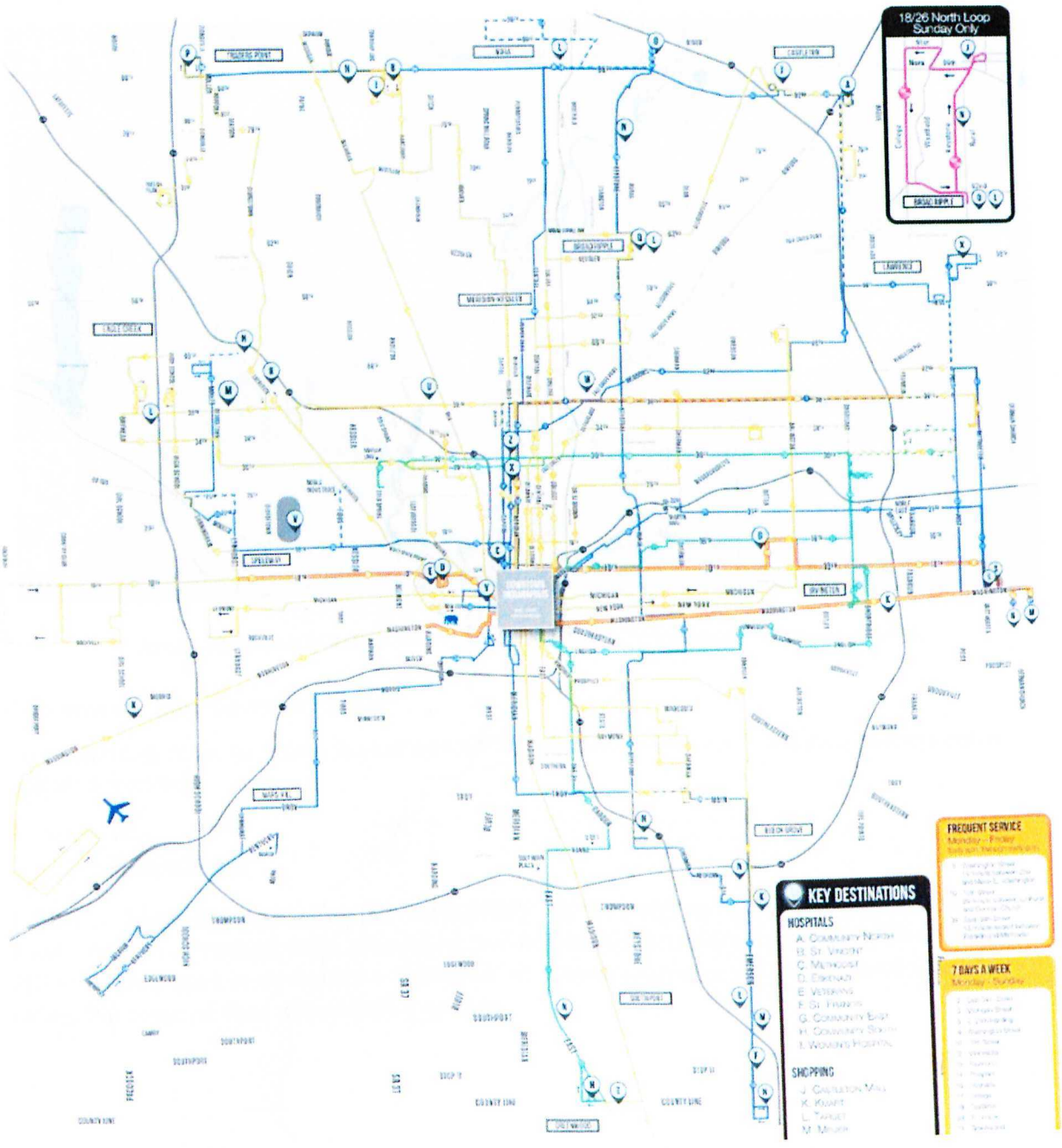
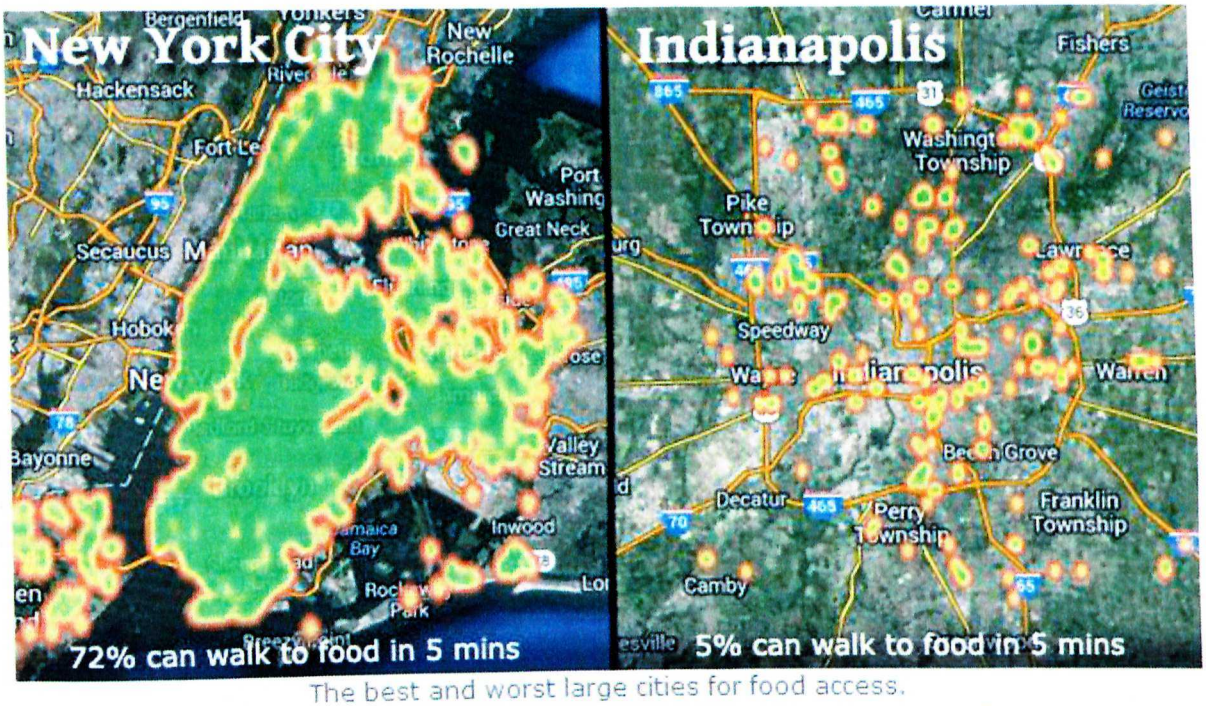


Figure 4: Map of IndyGo bus routes and destinations, with additional directions about frequency and location types.



The best and worst large cities for food access.
Areas in green indicate where you can walk to a grocery store in 5 mins.

The Worst Cities for Food Access

The following cities have the lowest percentage of people who can walk to a grocery store within 5 minutes:

Rank	City	People with Food Access (5 min walk)
1	Indianapolis	5%

Figure 5: **Maps demonstrating the 'walkability' of each city in regards to its access to** food. New York ranked most accessible, and Indianapolis ranked least accessible (Lerner 2014). While there is obviously a difference in population density between these two cities, the issue of food accessibility persists.

Summary of Age, Neighborhood Income and Environmental Indices by Township Population Density

Variable	Higher Population Density Townships (n = 6897)	Lower Population Density Townships (n = 437)	
	Mean (SD)	Mean (SD)	p*
Age (y)	8.06 (3.78)	8.12 (4.02)	.76
Neighborhood median family income ($1000s)	40.20 (10.29)	52.70 (8.55)	<.01
Normalized Vegetation Difference Index	0.11 (0.08)	0.13 (0.08)	<.01
Distance to nearest food retail (km)	2.36 (1.60)	3.56 (2.54)	<.01
Distance to nearest grocery store (km)	4.58 (3.54)	6.72 (5.14)	<.01
Distance to nearest convenience store (km)	3.00 (1.79)	4.19 (3.12)	<.01
Distance to nearest fast food restaurant (km)	3.25 (1.85)	4.56 (3.08)	<.01
Distance to nearest supermarket (km)	7.12 (3.93)	6.77 (5.31)	.07

* *p* values are from two sample *t*-tests.

Figure 6: Average distances to various food outlets in Marion County (Lui et al. 2007:321). High-density townships include Wayne and Lawrence Townships, while low-density townships includes Pike Township.

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